

1. A peptide that selectively homes to brain.
2. The peptide of claim 1, said peptide having
5 the amino acid sequence:
- X_1SRLX_2 (SEQ ID NO: 45),
- wherein X_1 and X_2 each is about 1 to about 10
independently selected amino acids.
3. The peptide of claim 2, said peptide having
10 the amino acid sequence CLSSRLDAC (SEQ ID NO: 3).
4. The peptide of claim 2, said peptide having
an amino acid sequence selected from the group consisting
of CNSRLHLRC (SEQ ID NO: 1) and CNSRLQLRC (SEQ ID NO: 5).
5. The peptide of claim 1, said peptide having
15 the amino acid sequence:
- X_3VLRX_4 (SEQ ID NO: 46),
- wherein X_3 is absent or is about 1 to 10
independently selected amino acids and X_4 is about 1 to
about 20 independently selected amino acids.
6. The peptide of claim 5, said peptide having
an amino acid sequence selected from the group consisting
of CVLRGGRC (SEQ ID NO: 4) and WRCVLREGPAGGCAWFNRHRL (SEQ
ID NO: 16).

7. The peptide of claim 1, said peptide having an amino acid sequence selected from the group consisting of CENWWGDVC (SEQ ID NO: 2) and CGVRLGC (SEQ ID NO: 6).

5 8. The peptide of claim 1, said peptide having an amino acid sequence selected from the group consisting of CKDWGRIC (SEQ ID NO: 7); CLDWGRIC (SEQ ID NO: 8); and CTRITESC (SEQ ID NO: 9).

9. A peptide that selectively homes to kidney.

10 10. The peptide of claim 9, said peptide having an amino acid sequence selected from the group consisting of CLPVASC (SEQ ID NO: 21); CGAREMC (SEQ ID NO: 22); and CKGRSSAC (SEQ ID NO: 23).

15 11. The peptide of claim 9, said peptide having an amino acid sequence selected from the group consisting of CWARAQGC (SEQ ID NO: 24); CLGRSSVC (SEQ ID NO: 25); and CTSPGGSC (SEQ ID NO: 26).

12. A molecule that homes to a selected organ, wherein said molecule is identified by *in vivo* panning, comprising the steps of:

- 20 a. administering to a subject a library of diverse molecules;
- b. collecting a sample of the selected organ; and
- 25 c. identifying a molecule that homes to said selected organ.

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